

What is claimed is:

1. A light appliance and a cooling arrangement, comprising:
 - a) a light appliance;
 - b) a substantially sealed enclosure for the light appliance that gives off unwanted heat
5 into surrounding air within the enclosure during operation, the enclosure having an external wall at least part of which is thermally conductive;
 - c) a medium, cooler than the external wall of the enclosure, contacting said external wall; and
 - d) an air circulating device for circulating air, heated by the light appliance or by the air
10 circulating device, to the thermally conductive portion of the external wall for removing sufficient heat from the air by thermally dissipating the heat into the cooler medium through said thermally conductive portion so as to substantially increase lifetime of the light appliance.
2. The combination of Claim 1, wherein the light appliance comprises a filamented lamp.
- 15 3. The combination of Claim 2, wherein the filamented lamp comprises molybdenum leads.
4. The combination of Claim 2, wherein the lamp is a halogen lamp.
5. The combination of Claim 1, wherein the light appliance comprises a high intensity discharge lamp.
- 20 6. The combination of Claim 5, wherein the high intensity discharge lamp comprises molybdenum leads.
7. The combination of Claim 5, wherein the lamp is a high pressure sodium lamp, a high pressure mercury vapor lamp, or an ultrahigh pressure mercury lamp.
8. The combination of Claim 1, wherein the light appliance further comprises a heat sink
25 for removing heat from the light appliance.
9. The combination of 1, wherein the light appliance comprises an LED.
10. The combination of Claim 9, wherein the light appliance further comprises a heat sink for removing heat from the LED.

11. The combination of Claim 1, wherein the medium comprises water.
12. The combination of Claim 1, wherein the medium comprises a solid.
13. The combination of Claim 12, wherein the solid includes a cooling device for cooling the
5 solid to a sufficiently low temperature to allow substantial dissipation of heat from within
 the enclosure into the solid through said thermally conductive portion.
14. The combination of Claim 1, wherein the medium comprises air.
15. The combination of Claim 14, wherein the air comprises circulating air.
16. The combination of Claim 1, wherein the air circulating device comprises an electrical
 fan.
- 10 17. The combination of Claim 1, wherein the air circulating device comprises a heat pump
 or an air pump.
18. The combination of Claim 1, wherein the thermally conductive wall comprises stainless
 steel.
19. The combination of Claim 18, wherein the thermally conductive wall further comprises
15 glass.
20. The combination of Claim 1, wherein the thermally conductive wall comprises a
 thermally conductive plastic.
21. A light appliance with a cooling arrangement, comprising:
 - a) a light appliance;
 - 20 b) a sealed enclosure for the light appliance that gives off unwanted heat into
 surrounding air within the enclosure during operation, the enclosure having an
 external wall at least part of which is thermally conductive;
 - c) a medium comprising water, cooler than the external wall of the enclosure,
 contacting said external wall; and
 - 25 d) an air circulating device to circulate air heated by the light appliance, as well as heat
 generated by the air circulating device, to the thermally conductive portion of the
 external wall so as to cool said air by thermal dissipation into the cooler medium
 through said thermally conductive portion.
22. The combination of Claim 21, wherein the light appliance comprises a filamented lamp

or a high intensity gas discharge lamp.

23. The combination of Claim 22, wherein the light appliance further comprises a heat sink for removing heat from the lamp.

5 24. The combination of Claim 22, wherein the thermally conductive wall comprises stainless steel.

25. The combination of Claim 24, wherein the thermally conductive wall further comprises glass.

26. The combination of Claim 21, wherein the thermally conductive wall comprises a thermally conducting plastic.

10 27. A light appliance with a cooling arrangement, comprising:

a) a light appliance;

b) a sealed enclosure for the light appliance that gives off unwanted heat into surrounding air within the enclosure during operation, the enclosure having an external wall at least part of which is thermally conductive;

15 c) a medium comprising water, cooler than the external wall of the enclosure, contacting said external wall; and

d) an electrical driver comprising an electrical or electromagnetic device for converting voltage and/or limiting current to the light appliance; and

20 e) an air circulating device to circulate air heated by the light appliance, as well as heat generated by the air circulating device, to the thermally conductive portion of the external wall so as to cool said air by thermal dissipation into the cooler medium through said thermally conductive portion.

28. The combination of Claim 27, wherein the light appliance comprises a filamented lamp or a high intensity gas discharge lamp.

25 29. The combination of Claim 28, wherein the light appliance further comprises a heat sink for removing heat from the lamp.

30. The combination of Claim 28, wherein the thermally conductive wall comprises stainless steel.

31. The combination of Claim 30, wherein the thermally conductive wall further comprises

glass.

32. The combination of Claim 21, wherein the thermally conductive wall comprises a thermally conducting plastic.